

REMARKS

In accordance with the foregoing, claims 1, 3, 5-12 and 18 have been amended and claims 27-29 have been added, thus claims 1, 3-12 and 18-29 are now pending and under consideration. No new matter is included in this amendment. The Examiner's rejections are traversed below.

Amendment Status of Claims:

The claims set forth above have been annotated with amendment status according to the present standards, in consideration of the claims as originally filed, previous amendments and the present amendments. All claims not previously amended or amended herein are annotated with their "original" status.

The First 35 U.S.C. § 102(e) Rejection:

At page 3 of the Office Action, claims 1 and 3-12 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,407,976 to Nagara et al. This rejection is respectfully traversed. Claims 1 and 5-12 have been amended to improve form and to more clearly point out the claimed subject matter.

Regarding claim 1, the Examiner refers particularly to FIGS. 1-3 and 7, col. 7, lines 1-5, col. 1, lines 45-60 and col. 3, line 30 to col. 4, line 53. Col. 7, lines 1-5 disclose that an APC 30 generates a light under a write control signal supplied from the write signal generator 21. Col. 1, lines 45-60 disclose generally a difference between a magneto-optic disc and a phase change optical disk and that a laser light is used for recording marks and spaces on the phase change optical disk. Col. 3, line 54, through col. 4, line 53, generally describes waveforms shown in FIGS. 1A and 1B. The pulses described shown in FIG. 1A and 1B do not disclose a multiple pulse train having a first pulse, a multi-pulse and a last pulse for forming a mark, but describe an erase pulse P_E and a write pulse P_W . No mention is made in the portions mentioned by the Examiner that the write pulse is a multi-train pulse having "a first pulse, a multi-pulse and a last pulse," as claimed in claim 1. Further, no mention is made in the portions mentioned by the Examiner of "adapting a power level of the first pulse relative to the peak power level of the multi-pulse depending on a correlation between the mark and a previous space;" and "adapting a power level of the last pulse relative to the peak power level of the multi-pulse depending on a correlation between the mark and a next space," as claimed in claim 1.

FIG. 3 of Nagara et al. discloses a form of adaptive control, however, the adaptive control shown in FIG. 3 is based on sensing light reflected from the disc and adapting the pulse based on the reflected light and does not adapt levels of the first and last pulses based on a correlation between a mark and a previous space or a mark and a next space. FIG. 7 discloses a multi-pulse train having an initial pulse T_{FP} and a cooling pulse T_{CP} . As mentioned at col. 11, lines 31-32, Nagara et al. disclose that "for writing a mark 4 on the recording surface, the peak power PP is used. Thus, the pulse T_{CP} , is not a part of a pulse which makes the mark and cannot be considered to be the same as the "last pulse" as recited in claim 1. Further, there is no disclosure that the power level of pulse T_{FP} is in any way adaptable depending on a correlation between a mark and a space, as claimed in claim 1.

Thus, since Narada et al. fail to disclose each feature of the invention as claimed in claim 1, arranged as recited in claim 1, Narada et al. fail to anticipate the invention as claimed in claim 1.

Claim 3 has been amended as set forth above. Narada et al. make no mention of "adapting the power level of the multi-pulse depending on a density of a non-return-to-zero inverted (NRZI) signal which defines the marks and spaces," as claimed in claim 3.

Claim 4 is deemed to be patentable at least for similar reasons set forth above regarding claim 1.

Claim 5 has been amended to recite that "the power level of the first pulse is adaptable to be higher or lower than the peak power level of the multi-pulse."

Claim 6 has been amended to recite that the method further comprises "further adapting the power level of the first pulse depending on a size of the mark."

Claim 7 has been amended to recite that the method further comprises adapting the power level of the multi-pulse depending on the size of the mark.

Claim 8 has been amended to recite that the method further comprises "further adapting the power level of the first pulse depending on the size of a current mark."

Claim 9 has been amended to recite that "the power level of the last pulse is adaptable to be higher or lower than the peak power level of the multi-pulse.

Claim 10 has been amended to recite "adapting the power level of the last pulse depending on a size of the mark."

Claim 11 has been amended to recite "further adapting the power level of the last pulse depending on a size of the mark."

Claim 12 has been amended to recite "adapting the power level of the multi-pulse depending on the size of the mark."

Regarding claims 4-12, Narada et al. fail to disclose the combinations of features recited in each of claims 4-12.

The Second 35 U.S.C. § 102(e) Rejection:

At page 5 of the Office Action, claims 18-26 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,160,784 to Maeda et al. This rejection is respectfully traversed. Claim 18 has been amended to improve form. Regarding claim 18, the Examiner refers particularly to the following portions of Maeda et al.: Figs. 1-4, col. 4, line 42-col. 6, line 35 and the Abstract.

Claim 18 of the present application recites "controlling a power level of said last pulse independent of a power level of said first pulse." According to the Abstract, Maeda et al. relates generally to "controlling both pulse edge positions and mark edge control based on control of one of the pulse edges." That is, as disclosed in the abstract, Maeda et al. is related to timing control and not power level control. FIGS. 1-3B disclose a leading edge shift and a trailing edge shift depending on mark length and are not related to power level control. Col. 4, line 42- Col. 6, line 35 describes the waveform in Fig. 1 in more detail and portions thereof relative to a comparison of the disclosure of Maeda et al. with the invention as recited in claim 18 include the portion labeled T_{FP} , the portion T_{LP} and the portions between the portion T_{FP} and the portion T_{LP} , one of which portions is identified as T_{MP} . All of the portions T_{FP} , T_{LP} and T_{MP} are shown having a same laser power level and applicants have not found any portion of Maeda et al. which discloses that T_{FP} and T_{LP} are controlled independently. Thus, where the first and last pulses, as recited in claim 18, are compared with the T_{FP} and T_{LP} pulses shown in Fig. 1 of Maeda et al., Maeda et al. do not disclose "controlling a power level of said last pulse independent of a power level of said first pulse, as claimed in claim 18. Thus, Maeda et al. does not anticipate claim 18.

Regarding claims 19-25, the Examiner continues to refer vaguely to the same portions of Maeda et al. as are referenced with respect to claim 18, however, the Examiner appears to be referring to portions of the waveform shown in Fig. 1 other than the portions identified as T_{FP} , T_{LP} and T_{MP} , which appear to be the portions of the pulse for actually forming a mark. The Examiner

is respectfully requested to identify by reference character or characters, the portions of the waveform shown in Fig. 1, which the Examiner alleges correspond to the first pulse, the last pulse and the multi-pulse recited in claims 18-25.

Regarding claim 26, the Examiner refers particularly to Figs. 1-4 and 7 of Maeda et al., col. 3, lines 48-67, and col. 4, lines 40-58. There is no Fig. 7 included in the patent drawings, included in the brief description of the drawings or otherwise mentioned in the specification. Col. 3, lines 43-67, include no disclosure relative to claim 26 and the disclosure at col. 4, lines 40-58 makes no mention of controlling the pulses T_{FP} and T_{LP} independently.

New Claims 27-29:

New claim 27 recites a method of forming a mark on an optical recording medium, the method comprising: generating a recording pulse train comprising a first pulse, a multi-pulse having a peak power level, and a last pulse; adapting a power level of at least one of the first pulse and the last pulse relative to a peak power level of the multi-pulse depending on a correlation between the mark and one of a previous space and a next space, respectively; and driving a recording unit with the recording pulse train to record the mark on the optical recording medium." For reasons set forth above regarding claims 1-26, the prior art of record does not disclose the invention as claimed in claim 27. Claim 28 is deemed to be patentable at least for similar reasons set forth above regarding claim 27. Claim 29 recites a method of forming a mark on a recording medium in response to an NRZI signal by selectively applying of a plurality of write signals. Support for claim 29 is found in the specification at table 1 and in the text referring to table 1.

Conclusion:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

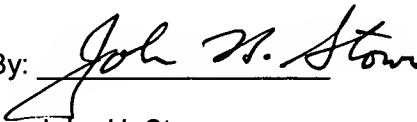
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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